

CLAIMS

1. Domestic oven, of the type comprising heating means, a gas sensor (10) connected to a central processing and control unit (26) and a user interface (12) connected to said central processing unit by means of which the user can set the type of food placed in the oven compartment, characterised by the fact that the user interface (12) comprises means (18) for setting the desired degree of cooking of the food and by the fact that the central processing unit (26) is capable of processing the signal of the gas sensor (10) in such a way as to determine the cooking end time of the food, the central processing unit being capable of interrupting the power supply to the heating means on the basis either of this cooking end time modified, if necessary, on the basis of the degree of cooking set by the user, or of the food type set by the user.
2. Oven according to Claim 1, characterised by the fact that the central processing unit (26) is capable of determining the cooking interval using a function of the signal coming from the gas sensor (10), the temperature of the compartment and the control algorithm for the oven.
3. Oven according to Claim 1, characterised by the fact that the central processing unit (26) is capable of determining the cooking interval by analysing the signal from the gas sensor, said analysis providing, in addition to conventional filtering, a study of the gradient and variations in the gradient of said signal, as well as a study of maxima and minima, and a comparison of these characteristics with predetermined values stored in the central processing unit.
4. Oven according to Claim 1, characterised by the fact that the central processing unit (26) is capable of filtering the signal from the gas sensor (10), the amplitude of filtering depending on the food type set by the user.
5. Oven according to any one of the preceding claims, characterised by the fact that the gas sensor (10) is positioned inside the duct (C) of the oven (F).

6. Process for automatic cooking in a domestic oven, of the type comprising the detecting of the signal from a gas sensor (10) and the setting by the user of the food type placed in the oven compartment, characterised by the fact that the cooking interval is determined using a function of the signal coming from the gas sensor (10), the temperature of the compartment and the control algorithm of the oven.
7. Process according to Claim 6, characterised by the fact that the cooking interval is determined by analysing the signal from the gas sensor (10), said analysis providing, in addition to conventional filtering, a study of the gradient and variations in the gradient of said signal, as well as a study of maxima and minima, and a comparison of these characteristics with predetermined values stored in the central processing unit.
8. Process according to Claim 7, characterised by the fact that it comprises a phase of processing the signal according to a function of the type:

$$F(t) = \frac{(t_a - t_b)^\alpha}{(Y_a - Y_b)^\beta}$$

where:

Y_a and Y_b are the values from the gas sensor at the time t_a and t_b

α and β are coefficients obtained experimentally for a particular food type, and searching for the moment when said function $F(t)$ has a minimum, said moment corresponding to the optimal cooking time of the food.

9. Process according to Claim 7, characterised by the fact that it also provides for a phase in which the user sets the desired degree of cooking of the food, said value modifying, if necessary, the moment corresponding to the actual end of cooking.